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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/777,002

02/11/2004

Joon-Won Kang

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3399

7590

06/01/2004

Matthew Luxton
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EXAMINER

TSAI, H JEY

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AA

Office Action Summary

Application N .

10/777,002

Applicant(s)

KANG, JOON-WON

Examiner

H.Jey Tsai

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
 Period Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-52 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 23-52 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 4/19/04.
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 23-30, 32-34, 36-37, 40-41, 44-45, 49-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Kang et al. 6,388,299, cited by applicant.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Kang discloses a method for making a contactless acceleration switch, which includes:

implanting a source, a drain, and a threshold adjustment channel 112 in a p type semiconductor substrate layer 180, and wherein the threshold adjustment channel 112 is implanted to provide a leakage path (inverted) located substantially between the source and the drain, col. 7, lines 28+ and fig. 7-8,

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forming at least two oxide/nitride insulator posts 182/184 on the substrate layer 180, and wherein the source, the drain, and the threshold adjustment channel are located substantially between the at least two insulator posts 182/184, fig. 14a+ and col. 11, lines 36+,

forming a first sacrificial oxide layer 210 on the substrate layer 180 substantially between the at least two insulator posts 182/184,

forming a polysilicon conductive mass 214 on the first sacrificial layer 210, fig. 14f,

forming a second sacrificial oxide layer 220 shaped to provide a pattern for forming

a spring, fig. 14g+,

forming the polysilicon conductive spring 250,

removing the first sacrificial layer 210 and the second sacrificial layer 220, and

wherein the spring holds the mass substantially above the substrate layer, and

forming a gate insulating oxide layer 290, fig. 14m+.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutteridge 5,818,093, cited by applicant in view of Zhang et al. 5,808,331 and Chung et al. 5,693,545.

The reference(s) teach the features:

Gutteridge discloses a method for making a contactless acceleration switch, which includes:

implanting a source, a drain 16-19, and a threshold adjustment channel in a p type semiconductor substrate layer 14, and wherein the threshold adjustment channel is implanted to provide a leakage path (inverted) located substantially between the source and the drain, col. 3, lines 35+ and fig. 2-7,

forming at least two thermal grown oxide insulator posts 21 on the substrate layer 14, and wherein the source, the drain, and the threshold adjustment channel are located substantially between the at least two insulator posts 21, col. 2, lines 5+,

forming a first sacrificial oxide layer 32 on the substrate layer 14 substantially between the at least two insulator posts 21, fig. 6,

forming a polysilicon conductive mass 20 on the first sacrificial layer 32, fig. 6,

forming a second sacrificial oxide layer 52 shaped to provide a pattern for forming

a spring 10, fig. 1, 4 and col. 4, lines 10+,

forming the polysilicon conductive spring 10,

removing the first sacrificial layer 32 and the second sacrificial layer 52, and wherein the spring 10 holds the mass substantially above the substrate layer 14, and

forming a gate insulating oxide layer 7.

The difference between the reference(s) and the claims are as follows:

Gutteridge et al. teaches forming an acceleration sensor by sensing the current arises from the threshold voltage in the channel region but does not teach ion implanting the channel region, the wet etching the oxide layers and thermal growing and etching oxide post and sacrificial layer. However, Zhang et al. teaches at col. 4, lines 5+, implanting the channel regions 19 and 30 for threshold voltage adjustment and at. col. 3, lines 47+, wet etching or dry (plasma etching) the oxide and polysilicon layers. And, Chung teaches at 4, lines 56+, thermally growing oxide posts 14 and sacrificial layer 15.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Gutteridge et al. process by ion implanting the channel region to adjust the threshold voltage of a transistor and wet or plasma etching the oxide and polysilicon layer as suggested by Zhang et al. because ion implantation is an easy method to produce a précised doping level in the channel region for the desire threshold voltage of a transistor and etching the oxide and polysilicon layers with either wet or plasma etching to obtain the desire pattern. And, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Gutteridge et al.'s process with thermally grown oxide layer as suggested by Chung et al. because oxide thickness would be uniformly formed over the substrate by using thermally grown oxide method.

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Any inquiry of a general nature or clerical matters or relating to the status of this application or proceeding should be directed to the customer service whose telephone number is 703-308-4357 and Fax number (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. Jey Tsai whose telephone number is (571) 272-1684. The examiner can normally be reached on from 7:00 Am to 4:00 Pm., Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on (571) 272-1679. The fax phone number for this Group is (703) 872-9306.

hjt

5/25/04



H. Jey Tsai
Primary Examiner
Patent Examining Group 2800